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ABSTRACT

In 1995, Cabrillo College was one of 18 California community colleges to participate in a pilot study on the uses of Unemployment Insurance (UI) wage record data for tracking employment rates of former community college students. The employment status of students who left the college in 1990 and 1991 was reported for their last year in college, first year out of college, and third year out of college. Data were collected by linking student records available through the statewide Management Information System with UI wage records maintained in the Employment Development Department. Results included the following: (1) of the 17,115 students in the study, UI wage record data were available for 77% of the students in the year they last attended college, 74% of the students in their first year after leaving college, and 67% of the students in their third year after college; (2) for students under 25 years of age, the largest gain in salary (123.7%) occurred among students who had obtained a certificate or associate degree; (3) of the 12 majors studied, students in the fire protection, radiological technology, nursing, dental hygiene, electronic technology, computer science, and business programs earned over $20,000 their first year out of college; and (4) in the first year out of college, Latinos who completed a degree or certificate earned $29,071, compared to $22,664 for non-completing Latinos. (HAA)

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ED 405 938

USING WAGE RECORD DATA TO MEASURE THE SUCCESS OF STUDENTS IN THE LABOR MARKET

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--A Longitudinal Study of Former Cabrillo College Occupational Education Students' Employment and Wages (cohorts 1990 and 1991)

This report is authored by Jing Luan, Ph.D., Director, Institutional Research and Susan Sargent, Ed.D., Dean, Occupational and Community Development at Cabrillo College. If you have any questions or comments, please contact Jing @ 408/479-5719 or Susan @ 408/479-6482.

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USING WAGE RECORD DATA TO MEASURE THE SUCCESS OF STUDENTS IN THE LABOR MARKET

--A Longitudinal Study of Former Cabrillo College Occupational Education Students' Employment and Wages (cohorts 1990 and 1991)

Office of Institutional Research
Dean's Office of Occupational & Community Development
July 1996

EXECUTIVE SUMMARY

Cabrillo College was one of eighteen colleges that participated in a study on the uses of Unemployment Insurance (UI) wage record data for tracking employment rates of community college students. This study provided information on occupational education students who left Cabrillo College in 1990 and 1991. The employment status of students was reported for their last year in college, first year out of college and third year out of college. The data was collected by linking student records available through the Chancellor's Office Management Information System with the UI wage records maintained in the Employment Development Department (EDD). Nearly all employers are required to report information on all employees to EDD on a quarterly basis. This data yielded the following information: percentage of students working, actual income earned by program completers and leavers one and three years after they leave the college, industry of employment, comparisons of wages earned by students while they were in college vs. one and three years after leaving college and by students who earned a degree or certificate vs. students who did not, and comparisons of program completers by special population categories.

Research Question One: *How many students are working in California one to three years after they leave Cabrillo?*

Of the 17,115 students in the study, UI wage record data were available for 77% of the students in the year they last attended college, 74% of the students in their first year after leaving college; and 67% of the students in their third year after college.

Research Question Two: *What are the employment rates and earnings one to three years after leaving Cabrillo for students who completed an associate degree or certificate vs. students who completed units in their major with no degree or certificate?*

For students under 25 years of age, the largest gain (123.7%) in salary occurred among students who had obtained a certificate or associate degree (completers). Students who were completers also had the highest income in the first year after college. Further, completers had the highest rate of continuous employment three years after they left school. The students who did not receive a degree or certificate, but completed more than 24 units had the second highest gains in salary.

For all students, regardless of their age, salary gains were still the highest for students who received a degree or certificate (completers), although it is not as drastic for all ages as students under the age of 25. This difference can be explained by the fact that many older

students have already worked for many years (life experience) and started out with a higher salary baseline.

For students of all ages, salary gains over three years were still highest for students who had received a degree or certificate (52.7%). For all former occupational education students who earned more than $12,875 in any given year, regardless of their age, again, the completers had the highest salary increase (23.7%) compared to other noncompleters which were all below 8%.

Research Question Three: *What are the employment rates and earnings one to three years after leaving Cabrillo for students who completed an associate degree or certificate by major?*

Of the 12 majors studied, students in the following seven programs earned over $20,000 in their first year out of college:

	First Year Out of College	Third Year Out of College
Fire Protection	$38,783	$40,648
Radiologic Technology	$37,274	$36,064
Nursing	$33,119	$40,820
Dental Hygiene	$32,398	$40,518
Electronic Technology	$30,181	$31,579
Computer Science	$27,319	$37,508
Business	$21,219	$25,836

Research Question Four: *What are the earnings and employment rates of former students in different populations defined by ethnicity, gender, academic disadvantaged status, economic status and proficiency in English?*

Latino Students

Latino students who completed a degree or certificate consistently earned higher salaries than noncompleters. In the first year out of college, completers earned $29,071 compared to noncompleters who earned $22,664. In the third year out of college, completers earned $36,254 as compared to $24,756.

There were more Latino completers under the age of 25 employed in their first year out of school (16.6% more) than noncompleters, and they also earned considerably more (36.1%). The same is true for Latino students of all ages. The difference became even larger the third year out of school.

Gender

Across the board, female graduates tended to have significantly higher salary gains than male graduates, especially if the females completed their programs of study (completers). For female graduates under the age of 25, their salary gains were higher than female noncompleters throughout the entire time span of the study. Younger (under 25) female and male completers made quicker salary gains (males: 40.7% and females: 28.9%) over a period of three years than students of all ages as a whole.

Academic Disadvantaged Status (students had enrolled in Pre-collegiate English or math)

The study indicated that for completers under the age of 25 that were academically disadvantaged, salary gains were 56.3% over a three year period, as compared to 9.8% for noncompleters. The study also showed that for all age groups, being academically disadvantaged or not, completers again had higher salary gains than noncompleters.

Economic Status (students who had received financial aid)

An analysis of former students by economic disadvantaged status revealed, in general, that being educated at Cabrillo College contributed to salary gains for those who had completed their program of study. For those who were economically disadvantaged, the increase of salary over a period of three years was 13.4%, compared to -.2% for those who were noncompleters.

Limited English Proficiency (or LEP, students who had enrolled in ESL)

For all age groups, the completers with limited English proficiency earned consistently more than noncompleters with limited English proficiency, but with less significant percentage differences. An analysis for all age groups revealed that completers with limited English proficiency had the highest salary gain (84.6%) over a three year period.

Summary

First and foremost, an associate degree or certificate from Cabrillo increased the earnings of former students. The study provided answers to questions such as the employment rates of former Cabrillo students in occupational programs. It also shed light on the earning power for students by majors and by different demographic configurations. The study is a local validation of studies carried out at the state level (Friedlander, the Chancellor's Office) and the national level (W. N. Grubb).

USING WAGE RECORD DATA TO MEASURE THE SUCCESS OF STUDENTS IN THE LABOR MARKET

--A Longitudinal Study of Former Cabrillo College Occupational Education Students' Employment and Wages (cohorts 1990 and 1991)

Office of Institutional Research
Dean's Office of Occupational & Community Development
July 1996

BACKGROUND

California Community Colleges and the Chancellor's Office have been working together to identify methods for measuring student success. One such method for measuring the success of students in the labor market has resulted in the study of job placement rates. This methodology involves linking student records with Unemployment Insurance wage records provided by the State of California's Employment Development Department (EDD). The Chancellor's Office obtains the student record files for students who completed occupational education courses and provides them to EDD technical staff who, in turn, match these records with their Unemployment Insurance wage records. The EDD records contain information submitted by all California employers. The results are longitudinal data on the employment and salary patterns of occupational program completers and leavers.

A feasibility study of two community colleges was conducted in 1992 to evaluate the accuracy and usefulness of data extracted from these wage records. The study indicated that gaining access to the wage records provides an efficient and cost effective alternative to studying placement rates of community college students. Prior to statewide implementation of this system, the Post-Education Employment Tracking System, a supplemental study was conducted to refine the procedures used in collecting, analyzing, and reporting the data. Cabrillo College was one of 18 community colleges selected to participate in the second pilot study. The purpose of this report is to: (1) describe the Post-Education Employment Tracking System; (2) present the results of the study conducted in 1995 that assessed Cabrillo College student employment rates; (3) identify the major advantages and limitations of using this system; and (4) offer recommendations for application of this data by Cabrillo College.

DESCRIPTION OF THE POST-EDUCATION EMPLOYMENT TRACKING SYSTEM

The Post-Education Employment Tracking System consists of two sources of data: (1) Unemployment Insurance wage records collected by EDD and (2) demographic and educational data for all California community college students available in the Chancellor's Office MIS. Following is a brief description of each of these data sources and the procedures used to link the two systems.

Linking Unemployment Insurance (UI) Wage Record Data with Student Data in the Chancellor's Office Management Information System (MIS)

Unemployment Insurance wage records contain reports of earnings submitted by employers who are required to comply with the state's Unemployment Compensation law. On a quarterly basis, employers are required to report their employer identification number, the industry affiliation of the business, and the earnings and title of the positions held by each employee. Approximately 95 percent of all persons employed in California are included in this database. Those not included in the UI wage records are:

(1) self-employed;
(2) employees who are paid on a commission basis; and
(3) federal government employees, including the military.

These groups comprise approximately three percent of the labor force nationwide. In addition, people who work outside of California are not included in this database.

The Chancellor's Office MIS provides demographic and educational data for all students attending California community colleges. The information available includes: (1) demographic data: age, gender, ethnicity, financial aid status, English language proficiency and disability status; and (2) educational data: grades, courses completed, degrees and certificates earned. The Post-Education Employment Tracking System involves electronically matching the student's social security number with their UI wage data file maintained by EDD.

Once student record files are submitted to EDD by the Chancellor's Office MIS division, EDD adds the wage record data to each student record file for each of the quarters requested. To protect confidentiality, social security numbers are replaced by student identification numbers. The student records, containing the wage record data, are then returned to the Chancellor's Office for review and analysis. Twenty colleges originally participated in the two pilot studies. These colleges received a data file from the Chancellor's Office that provided an aggregated report of the merged data.

Data Analysis and Interpretation

In order to utilize UI wage records effectively, significant decisions were made regarding the collection, analysis and interpretation of the data. These decisions included identifying the number of years to match each cohort of students, defining special populations, assigning majors to students, determining the level of coursework to be considered "vocational", recognizing the importance of age ranges and adjusting for the lack of information on employment hours. The most important decisions that need to be explained for a clearer understanding of the major findings of this study include: (1) the relationship between age and earnings; and (2) the need to adjust for full-time and part-time employment.

Relationship Between Age and Earnings

The initial pilot study indicated a strong, positive relationship between age and earnings during and after students attended college. For example, students from Santa Barbara City College (SBCC) under the age of 24 earned $5,233 during their last year of college as

compared to students over the age of 35 who earned $13,351. Even in the third year after leaving SBCC, students under 24 earned $15,839 as compared to $23,408 for those students over the age of 35. As a result of these differences between younger and older students, the importance of controlling for age was explicit. Not differentiating for age would result in a overstatement of entry-level earnings and/or a conclusion that students who take several occupational classes but do not earn a degree make more money than students who earned a degree.

Adjusting for Hours of Employment

One serious limitation of the UI data is the lack of information on the number of hours a person works in a week, making it impossible to determine whether students are working full or part-time. In order to adjust for these hours, an average hourly wage has been used for calculating annual wages that translates into full-time employment. The figure being used, $12,875, is equal to 50% of the average hourly wage of production workers on manufacturing payrolls in California. This income level has been used in this study as a measure to approximate the minimum wage needed for a family of four to be financially self-sufficient. Minimum wage is not used since a family earning this wage would be considered under the poverty level. It is assumed that any worker who earned less than $12,875 was not a full-time participant in the labor force. As a consequence, data are analyzed using this figure.

RESEARCH DESIGN AND MAJOR FINDINGS OF THE CABRILLO COLLEGE STUDY

The pilot project studied occupational education students who left Cabrillo College in 1990 and 1991. The study specifically addressed the following questions:

(1) How many students are working in California one to three years after they leave Cabrillo College?

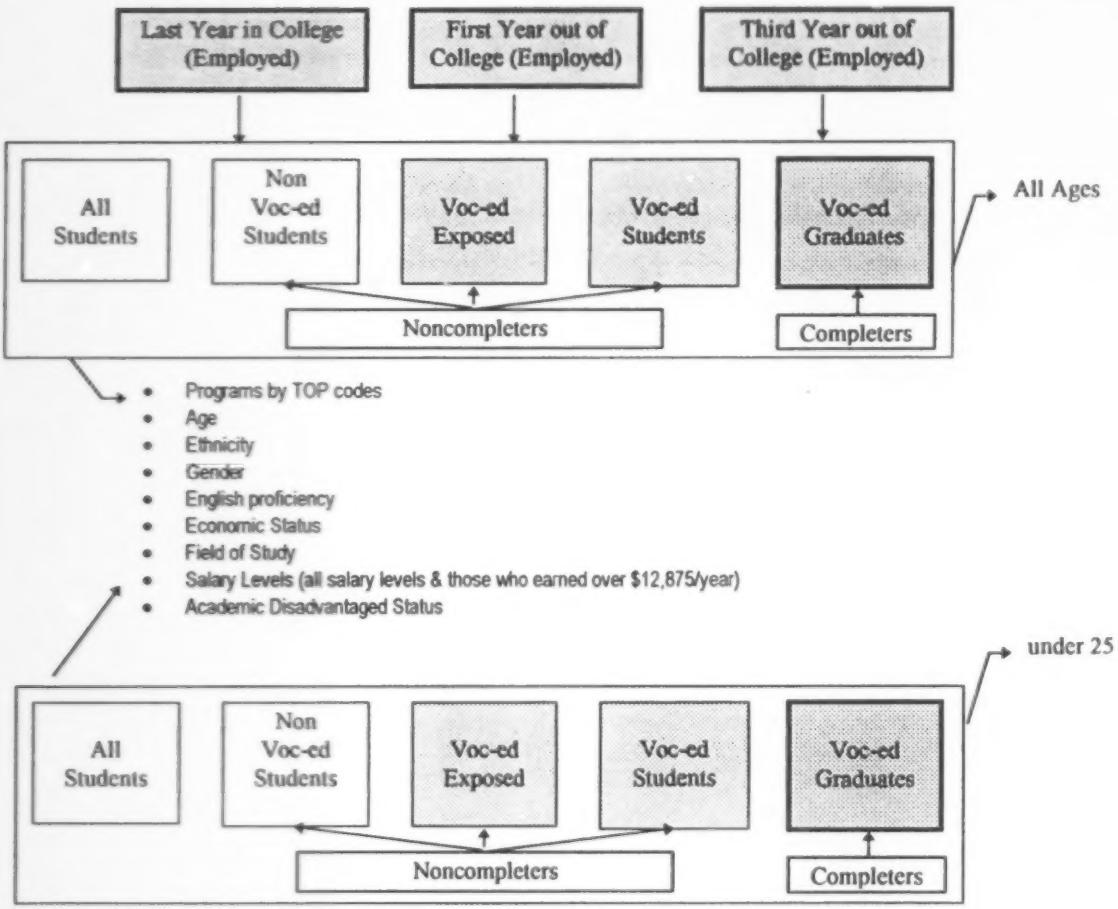
(2) What are the employment rates and earnings one to three years after leaving Cabrillo College for students who completed an associate degree or certificate vs. students who completed units in their major with no degree or certificate?

(3) What are the employment rates and earnings one to three years after leaving Cabrillo College for students who completed a degree or certificate by major field?

(4) What are the earnings and employment rates of former students in different populations?

This study tracked the employment status of these students during their last year in college and one and three years after they left. In addition, this study examined the following parameters: age, gender, ethnicity, occupational major, educational attainment status, economic status, and English proficiency. The figure on next page illustrates the entire scope of the UI wage data study via a dimension map. Among the five different student occupational education choices, represented by the five boxes, the grey colored boxes are

the focus of the study. The box with the darker shade is the center of the focus. In this case, the total number of occupational education student was 4, 432 (see Table 1).



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Research Question One: How many students are working in California one to three years after they leave Cabrillo?

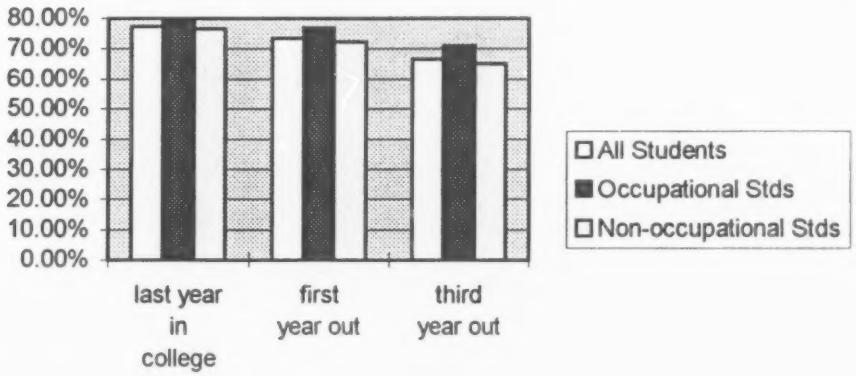
Table 1 shows that of the 17,115 students in the study, UI wage record data were available for 77% of the students in the year they last attended college, 74% of the students in their first year after leaving college; and 67% of the students in their third year after college.

The match rates were slightly higher for students in occupational education programs than for those in non-occupational programs during their last year in college (79% vs. 77%); the first year out of college (77% vs. 72%); and the third year out of college (71% vs. 65%).

Table 1, Percentage of Former Occupational and Non-occupational Education Students for Whom Wage Record Data Were Available One to Three Years after Leaving Cabrillo College.

	Original Cohort	Last Year in College	First Year Out	Third Year Out
All Students	17,115	77.3%	73.6%	66.7%
Occupational Stds	4,432	79.2%	77.1%	71.1%
Non-occupational Stds	12,683	76.6%	72.4%	65.2%

Figure 1, Matching Rates for Students Whose UI Wage Record Were Available



Research Question Two: What are the employment rates and earnings one to three years after leaving Cabrillo College for students who completed an associate degree or certificate vs. students who completed units in their major with no degree or certificate?

The results of this study indicated that the students who completed a degree or certificate from Cabrillo College made significant salary gains over a three year period. By the third year out of college, student salaries increased by 52.7%.

Table 2 (or Figure 2) displays the gains in wages and employment rates for students who were employed the last year in college (baseline year), the first year they were out of college, and three years out of college. These students were all occupational education majors and worked four quarters in a year.

For students under 25 years of age, the largest gain (123.7%) in salary was reported among students who had obtained a certificate or associate degree (completers). Students who were completers also had the highest income in the first year after college. Further, these former students had the highest rate of continuous employment three years after they left. The students who did not receive a degree or certificate, but completed more than 24 units had the second highest gains in salary.

For all students, regardless of their age, salary gains were highest for students who received a degree or certificate (completers), although it is not as drastic for all ages as students under the age of 25. This difference can be explained by the fact that many older students have already worked for many years (life experience) and started out with a higher salary baseline. Table 2 demonstrates that for students under the age of 25 gains in salary were as follows:

- Last year in college: $13,097
- First year out of college: $22,142
- Third year out of college: $29,294

For students of all ages (including those under age 25), the gains were as follows:

- Last year in college: $21,278
- First year out of college: $27,814
- Third year out of college: $32,496

Figure 2. Gains in Wages for Students under 25 and Students of All Ages

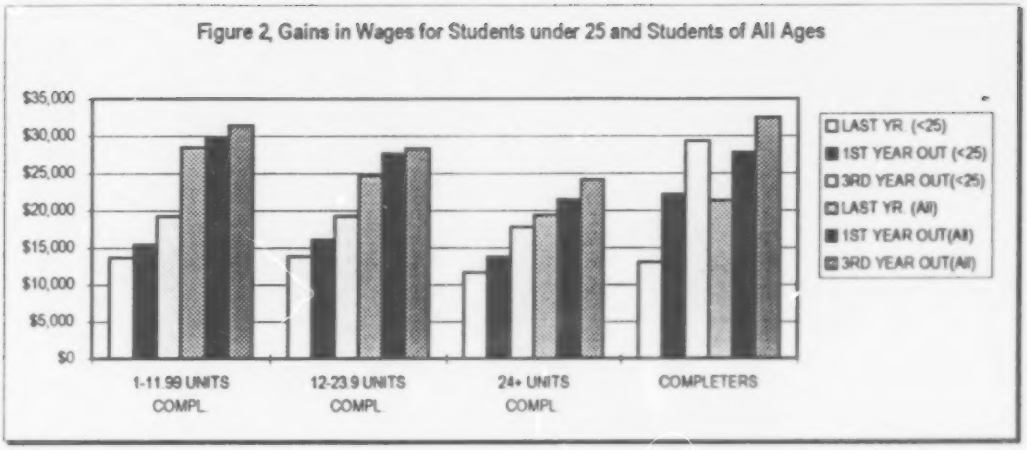


Table 2. Gains in Wages and Employment Rates from the Last Year in College, First Year out of College and Third Year out of College for Students in Occupational Education Programs Who Worked Four Quarters in a Year (1994 Dollars).

	UNDER 25					ALL AGES				
EDUC ATTAIN	N	LAST YEAR IN COLLEGE	1ST YEAR OUT OF COLLEGE	3RD YEAR OUT OF COLLEGE	% CHANGE	N	LAST YEAR IN COLLEGE	1ST YEAR OUT OF COLLEGE	3RD YEAR OUT OF COLLEGE	% CHANGE
1-11.99 UNITS COMPL.	239					1,563				
ANNUAL WAGES		$13,631	$15,475	$19,262	41.3%		$28,444	$29,908	$31,417	10.5%
% EMPLOYED		64.6%	65.5%	69.1%			74.6%	74.1%	73.1%	
12-23.9 UNITS COMPL.	180					777				
ANNUAL WAGES		$13,836	$16,042	$19,249	39.1%		$24,681	$27,617	$28,351	14.9%
% EMPLOYED		62.1%	60.5%	60.0%			71.2%	73.0%	73.7%	
24+ UNITS COMPL.	437					1,065				
ANNUAL WAGES		$11,664	$13,714	$17,772	52.4%		$19.412	$21,430	$24,130	24.3%
% EMPLOYED		63.2%	62.9%	62.6%			67.4%	66.0%	67.2%	
DEGREE/CERTIFIC. EARNED	117					479				
ANNUAL WAGES		$13,097	$22,142	$29,294	123.7%		$21,278	$27,814	$32,496	52.7%
% EMPLOYED		75.2%	79.1%	77.0%			69.1%	79.1%	81.9%	

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Figure 3, Changes in Earnings for Students under 25 who Earned over $12,875 a Year

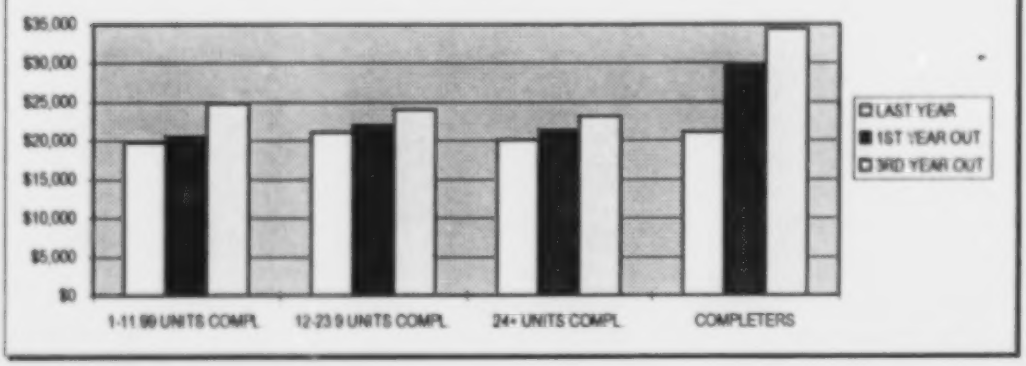

Table 3, Changes in Earnings and Employment Rates from the Last Year in College, First Year and Third Year out of College for Occupational Education Students Under Age 25 Who Worked Four Quarters and Earned $12,875 or More in a Year (1994 Dollars)

EDUCATIONAL ATTAINMENT	LAST YEAR ALL	LAST YEAR EARNING $12,875 +	LAST YEAR IN COLLEGE	1ST YEAR ALL	1ST YEAR EARNING $12,875 +	1ST YEAR OUT OF COLLEGE	3RD YEAR ALL	1ST YEAR EARNING $12,875+	3RD YEAR OUT OF COLLEGE	% CHANGE
1-11.99 UNITS COMPL	135	64		133	81		125	84		
ANNUAL WAGES			$19,739			$20,556			$24,800	25.6%
% EMPLOYED			47.4%			60.9%			67.2%	
12-23.99 UNITS COMP	100	47		89	53		87	62		
ANNUAL WAGES			$21,058			$22,026			$24,051	14.2%
% EMPLOYED			47.0%			59.6%			71.3%	
24+ UNITS COMPL	237	76		217	97		214	141		
ANNUAL WAGES			$20,011			$21,371			$23,138	15.6%
% EMPLOYED			32.1%			44.7%			65.9%	
DEGREE/CERT.	76	31		87	58		84	68		
ANNUAL WAGE			$21,022			$29,618			$34,388	63.6%
% EMPLOYED			40.8%			66.7%			81.0%	

Table 3 (or Figure 3) is an analysis of former students under the age of 25 who earned $12,875 in a given year. For students under the age of 25 that received a degree or certificate at Cabrillo and earned more than $12,875 in a given year, the data showed that they had the highest income the first year out of school, and also the highest salary gains (63.6%) over a period of three years.

Figure 4, Changes in Earnings for All Students who Earned over $12,875 a Year

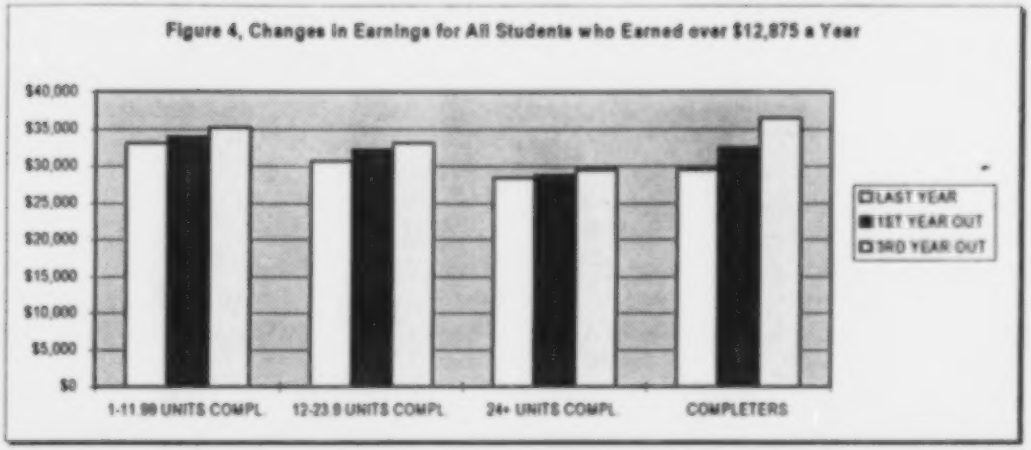

Table 4, Changes in Earnings and Employment Rates from the Last Year in College, First Year and Third Year out of College for Occupational Education Students (ALL AGES) Who Worked Four Quarters and Earned $12,875 or More in a Particular Year.

EDUCATIONAL ATTAINMENT	LAST YEAR ALL	LAST YEAR EARNING $12,875 +	LAST YEAR OUT OF COLLEGE	1ST YEAR ALL	1ST YEAR EARNING $12,875 +	1ST YEAR OUT OF COLLEGE	3RD YEAR ALL	1ST YEAR EARNING $12,875+	3RD YEAR OUT OF COLLEGE	% CHANGE
1-11.99 UNITS COMPL	938	764		903	760		814	701		
ANNUAL WAGES			$33,040			$33,971			$35,186	6.5%
% EMPLOYED			81.4%			84.2%			86.1%	
12-23.99 UNITS COMP	440	323		432	350		393	318		
ANNUAL WAGES			$30,695			$32,222			$33,078	7.8%
% EMPLOYED			73.4%			81%			80.9%	
24+ UNITS COMPL	567	320		530	345		511	386		
ANNUAL WAGES			$28,400			$28,795			$29,562	4.1%
% EMPLOYED			56.4%			65.1%			75.5%	
DEGREE/CERT.	264	164		326	265		312	269		
ANNUAL WAGE			$29,526			$32,569			$36,527	23.7%
% EMPLOYED			64.2%			81.3%			86.2%	

For all former occupational education students who earned more than $12,875 a year, regardless of their age, completers had the highest salary increase (23.7%) compared to other noncompleters which were all below 8%. Although this fast rate of change may have been a result of catching up from a lower salary level in their last year in college ($29,526), if this rate holds, the salary gains would be significant a few more years down the road. Compared to those students under the age of 25, the students (Table 4) seemed to have a higher average starting salary, which is likely attributable to older students who already had obtained a number of years of employment (life experience) which then resulted in higher salaries as their baseline.

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Research Question Three: What are the employment rates and earnings one to three years after leaving Cabrillo College for students who completed an associate degree or certificate by major?

Twelve majors were selected for the analyses of "educational attainment by majors" based on the criteria that the cell total should be a number larger or equal to five to ensure confidentiality of the data. Table 5 (or Figure 5) presents post-college employment rates and wages by major for all occupational students who earned an associate degree. For this table, the "% employed" for the first year out of school was calculated based on the formula: *% employed = the # of first year out of school students who worked all four quarters divided by the total in the cohort.* The third year "% employed" was calculated based on the formula: *% employed = the # of third year out of school students divided by the total in the cohort.*

In the years of 1990 and 1991, there were a total of 479 students who received either certificates or degrees (completers).

Of the 12 majors studied, students in the following seven programs earned over $20,000 in their first year out of college:

- Fire Protection $38,783
- Radiologic Technology $37,274
- Nursing $33,119
- Dental Hygiene $32,398
- Electronic Technology $30,181
- Computer Science $27,319
- Business $21,219

The occupations reporting the highest salary gains were: Criminal Justice (42.1%), Accounting (41.1%), Office Systems (38.1%), Computer Science/Information Systems (37.3%), Dental Hygiene (25.1%), and Business (21.8%).

	First Year	Third Year
Criminal Justice	$15,931	$22,630
Accounting	$14,520	$20,484
Office Systems	$14,530	$20,070
Comp. Sci./Info. Sys.	$27,310	$37,508
Dental Hygiene	$32,398	$40,518
Business	$21,219	$25,836

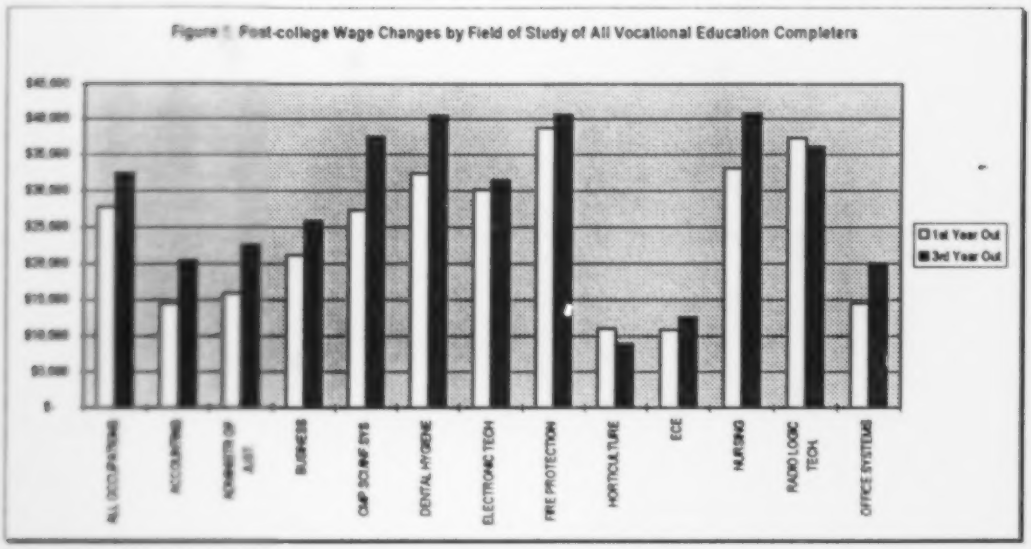

Table 5. Post-College Employment Rates and Wages by Field of Study for All Occupational Education Students Who Earned an Associate Degree or Certificate.

MAJOR FIELD	% EMPLOYED	1ST YEAR OUT	% EMPLOYED	3RD YEAR OUT	% CHANGE
ALL OCCUPATIONS	79.1%	$27,814	81.9%	$32,496	16.8%
BUSINESS	81.3%	$21,219	70.0%	$25,836	21.8%
ACCOUNTING	68.6%	$14,520	91.7%	$20,484	41.1%
OFFICE SYSTEMS	64.0%	$14,530	75.0%	$20,070	38.1%
COMP SCI /INF SYST	91.7%	$27,319	58.3%	$37,508	37.3%
ELECTRONIC TECH	63.3%	$30,181	84.6%	$31,579	4.6%
FIRE PROTECTION	87.0%	$38,783	95.7%	$40,648	4.8%
NURSING	87.9%	$33,119	91.6%	$40,820	23.3%
CRIMINAL JUSTICE	53.8%	$15,931	63.6%	$22,630	42.1%
ECE	80.0%	$10,876	80.0%	$12,594	15.8%
HORTICULTURE	71.4%	$11,063	88.9%	$8,954	-19.1%
DENTAL HYGIENE	90.2%	$32,398	87.5%	$40,518	25.1%
RADIOLOGIC TECH	91.4%	$37,274	90.0%	$36,064	-3.2%

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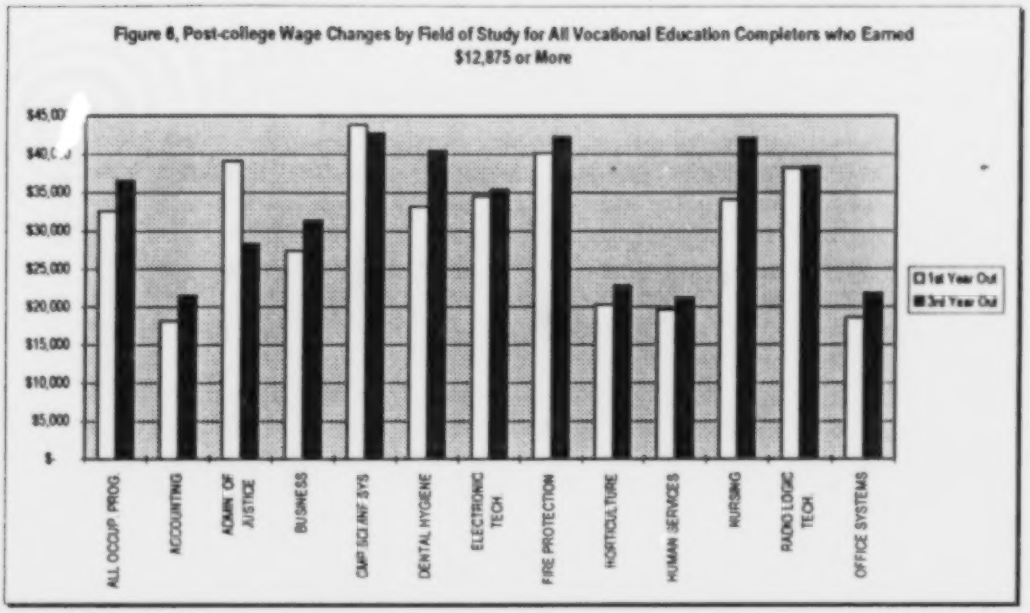

Table 6, Post-College Employment Rates and Wages by Field of Study for All Occupational Education Students Who Earned an Associate Degree or Certificate and Earned $12,875 or More.

MAJOR FIELD	% EMPLOYED	1ST YEAR WAGES	% EMPLOYED	3RD YEAR WAGES	% CHANGE
ALL OCCUP PROG	81.3%	$32,559	86.2%	$36,527	12.2%
BUSINESS	69.2%	$27,384	76.8%	$31,356	14.5%
ACCOUNTING	63.6%	$18,089	90.9%	$21,533	19.0%
OFFICE SYSTEMS	62.5%	$18,599	83.3%	$21,875	17.4%
COMP SCI /INF SYST	54.5%	$43,799	85.7%	$42,792	-2.3%
ELECTRONIC TECH	84.2%	$34,537	86.4%	$35,435	2.6%
FIRE PROTECTION	95%	$40,182	95.50%	$42,319	5.3%
NURSING	96.30%	$34,082	96.10%	$42,097	23.5%
CRIMINAL JUSTICE	28.6%	$39,101	71.4%	$28,315	-27.6%
ECE	33.3%	$19,665	41.7%	$21,187	7.7%
HORTICULTURE	40.0%	$20,315	25.0%	$22,826	12.4%
DENTAL HYGIENE	97.3%	$33,185	100.0%	$40,518	22.1%
RADIOLOGIC TECH	96.9%	$38,215	92.6%	$38,366	0.4%

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From Table 6 (students earning more than $12,875 or more a year), students in the following seven programs earned over $30,000 in their first year out of college. These were the students who might have been employed full-time.

- Computer Science $43,799
- Fire Protection $40,182
- Criminal Justice $39,109
- Radiologic Technology $38,215
- Electronic Technology $34,537
- Nursing $34,082
- Dental Hygiene $33,185

According to Table 6 (or Figure 6) for completers earning $12,875 or more in a given year, using 15% (with rounding) as the baseline for judging the rate of change in salaries among the occupations chosen for this study, the study found that the higher salary gains were noted by the following programs: Nursing (23.5%), Dental Hygiene (22.1%), Accounting (19.0%), Office Systems (17.4%), and Business (14.5%). For those occupations with negative salary changes, it should be noted that the actual number for the study was quite small which may have accounted for the drastic changes.

Research Question Four: What are the earnings and employment rates of former students in different populations defined by ethnicity, gender, academic disadvantage status, economic status and proficiency in English?

Ethnicity (Latino Students)

Due to the limitation of data on ethnicity, only the UI wage information for former Latino students was available. According to Table 8, there were more completers under the age of 25 employed in the first year out of school (16.6% more) than noncompleters, and they also earned considerably more (36.1%). The same is true for students of all ages. The difference became even larger the third year out of school. In terms of all salaries, the completers earned close to twice as much as noncompleters in the third year.

Table 8, Post-College Wages for Latino Students Who Worked Four Quarters (All Salary Levels).

	1st Year Empl'd	1st Year Wage	$12,875+ Empl'd	$12,875+ Group	3rd Year Empl'd	3rd Year Wage	$12,875+ Empl'd	$12,875+ Group	%change avg. wage	%change $12,875+
<25										
Noncompleters	71.4%	$17,678	71.8%	$21,810	69.3%	$20,501	83.0%	$23,015	16.0%	5.5%
Degree/Certificate	88.0%	$24,056	72.7%	$29,941	80.0%	$32,805	90.0%	$35,415	36.4%	18.3%
		36.1%	0.9%	37.3%		60.0%	7.0%	53.9%		
All Ages										
Noncompleters	72.9%	$22,664	78.5%	$26,296	70.8%	$24,756	85.6%	$27,344	9.2%	4.0%
Degree/Certificate	86.0%	$29,071	85.7%	$32,586	87.5%	$36,254	89.8%	$39,231	24.7%	20.4%
		28.3%	7.2%	23.9%		46.4%	4.2%	43.5%		

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Gender

According to Table 9, across the board, female graduates tended to have significantly higher salary gains than male students, especially if the females completed their programs of study (completers). For female completers under the age of 25, their salary gains were consistently higher than females noncompleters in any given year and at any given level of salary.

For male completers of all ages, there was a consistent low starting salary (as low as -8.0%), compared to male noncompleters. The situation did not improve much the third year into their employment (-2.7%), compared to those males who did not complete their studies at Cabrillo. Even for those male completers of all ages who earned more than $12,875 a year the salary gain in the third year was a low of .2%, compared to 21.9% for female graduates.

However, female and male completers under the age of 25 made quicker salary gains (males: 40.7% and females: 28.9%) in a period of three years than students of all ages as a whole. They also made quicker salary gains than students of their same age (under 25 group) who did not complete their programs (males: 28.8% and females: 15.0%).

Table 9. Post-College Wages by Gender for All Occupational Education Students (All Salary Levels).

	1st Year Emply'd	1st Year Wage	$12,875+ Emply'd	$12,875+ Group	3rd Year Emply'd	3rd Year Wage	$12,875+ Emply'd	$12,875+ Group	%change avg. wage	%change $12,875+
<25										
Female										
Noncompleters	65.3%	$14,066	53.3%	$19,746	71.5%	$16,181	65.0%	$21,097	15.0%	6.8%
Degree/Certificate	82.4%	$24,402	75.0%	$30,252	78.3%	$31,452	87.0%	$34,951	28.9%	15.5%
		73.5%	21.7%	53.2%		94.4%	22.0%	65.7%		
Male										
Noncompleters	64.9%	$18,162	62.7%	$24,540	64.5%	$23,387	73.5%	$28,811	28.8%	17.4%
Degree/Certificate	73.8%	$18,060	51.6%	$27,952	75.0%	$25,410	70.0%	$33,128	40.7%	18.5%
		-0.6%	-11.1%	13.9%		8.6%	-3.5%	15.0%		
All Ages										
Female										
Noncompleters	73.0%	$23,025	74.2%	$28,173	73.2%	$24,684	80.0%	$29,215	7.2%	3.7%
Degree/Certificate	81.5%	$26,700	83.3%	$30,711	84.5%	$31,892	86.9%	$35,614	19.4%	16.0%
		16.0%	9.1%	9.0%		29.2%	6.9%	21.9%		
Male										
Noncompleters	72.7%	$32,771	83.9%	$37,210	70.8%	$34,731	87.3%	$38,464	6.0%	3.4%
Degree/Certificate	74.5%	$30,158	77.1%	$36,756	76.7%	$33,796	84.8%	$38,536	12.1%	4.8%
		-8.0%	-6.8%	-1.2%		-2.7%	-2.5%	0.2%		

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Academic Disadvantaged Status

For those former students under the age of 25 who were not academically disadvantaged and did not complete their programs of study, they made significant salary gains (60.9% for all salaries and 12.7% for those who earned $12,875) over a three year period (Table 10). However, compared to those who completed their program of study, completers had a consistent pattern of earning more (year one: 14.3% all salaries, and 31.7% of those who earned $12,875 a year; year two: 10.5% all salaries, and 38.5% of those who earned $12,875 a year) than those who did not complete their program of study.

For the same age group, but academically disadvantaged, the trend was rather different. For those who completed their studies, they made higher salary gains in all salary levels (56.3%) compared to 9.8% for noncompleters. Completers had lower starting salaries in the first year (earned -11.9% less than the noncompleters), but their education paid off in the long run. They earned 25.5% more in the third year.

For all age groups, regardless of their academic disadvantaged status, completers had higher salary gains, compared to those who were noncompleters. For the group who earned more than $12,875 a year, the completers also had higher salaries consistently, while those who were academically disadvantaged earned slightly lower (-1.0%) in the first year.

Table 10, Post-College Wages by Academic Disadvantaged Status upon Entering College for all Occupational Education Students (All Salary Levels).

	1st Year Emply'd	1st Year Wage	$12,875+ Emply'd	$12,875+ Group	3rd Year Emply'd	3rd Year Wage	$12,875+ Emply'd	$12,875+ Group	%change avg. wage	%change $12,875+
<25										
Not Acad. Disadv.										
Noncompleters	66.3%	$12,674	56.3%	$22,554	68.8%	$20,393	71.1%	$25,415	60.9%	12.7%
Degree/Certificate	80.4%	$23,125	70.5%	$29,694	79.2%	$30,136	81.6%	$35,200	30.3%	18.5%
		82.5%	14.3%	31.7%		47.6%	10.5%	38.5%		
Acad. Disadv.										
Noncompleters	62.4%	$15,457	59.6%	$20,870	66.1%	$16,969	65.4%	$22,111	9.8%	5.9%
Degree/Certificate	69.2%	$13,624	33.3%	$28,216	61.5%	$21,300	75.0%	$25,991	56.3%	-7.9%
		-11.9%	-26.3%	35.2%		25.5%	9.7%	17.5%		
All Ages										
Not Acad. Disadv.										
Noncompleters	74.5%	$28,273	79.8%	$33,274	72.6%	$30,257	84.2%	$34,323	7.0%	3.2%
Degree/Certificate	79.4%	$28,660	83.3%	$32,950	81.8%	$33,275	87.5%	$36,985	16.1%	12.2%
		1.4%	3.6%	-1.0%		10.0%	3.3%	7.8%		
Acad. Disadv.										
Noncompleters	61.4%	$18,485	66.4%	$23,656	69.6%	$19,461	70.0%	$24,642	5.3%	4.2%
Degree/Certificate	76.7%	$20,306	63.6%	$28,019	82.5%	$25,909	75.8%	$32,049	27.6%	14.4%
		9.9%	-2.8%	18.4%		33.1%	5.8%	30.1%		

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Economic Status

An analysis of former students by economic disadvantaged status (students who received financial aid while in college) revealed that attending Cabrillo College contributed to higher salary gains for those who completed their program of study (Table 11). For those who were not economically disadvantaged and who were under the age of 25, completers salary increased by 36.7% over a period of three years. For those who were economically disadvantaged, the increase was 13.4%, which was still higher than -.2% for those who were noncompleters. For those who earned more than $12,875 a year and were economically disadvantaged, the completers earned 31.5% more than noncompleters in the first year and 52.2% more in the third year.

For all age groups, the completers earned consistently more than noncompleters, but with less significant percentage differences. Even so, the group who earned more than $12,875 a year and were economically disadvantaged in college earned 46.1% more than those who did not complete their studies.

Table 11, Post-College Wages by Economic Status upon Entering College for Occupational Education Students (All Salary Levels).

	1st Year Emply'd	1st Year Wage	$12,875+ Emply'd	$12,875+ Group	3rd Year Emply'd	3rd Year Wage	$12,875+ Emply'd	$12,875+ Group	%change avg wage	%change $12,875+
<25										
Econ Disadv., No										
Noncompleters	61.7%	$15,567	59.0%	$21,067	67.4%	$18,667	68.0%	$23,544	19.9%	11.8%
Degree/Certificate	78.4%	$21,774	65.2%	$29,594	72.4%	$29,765	81.0%	$34,966	36.7%	18.2%
		39.9%	6.2%	40.5%		59.5%	13.0%	48.5%		
Econ. Disadv., Yes										
Noncompleters	61.2%	$16,187	58.3%	$22,579	72.5%	$17,055	67.3%	$21,457	5.4%	-5.0%
Degree/Certificate	81.8%	$23,552	72.2%	$29,699	95.5%	$27,882	81.0%	$32,653	18.4%	9.9%
		45.5%	13.9%	31.5%		63.5%	13.7%	52.2%		
All Ages										
Econ Disadv., No										
Noncompleters	69.9%	$25,085	75.7%	$30,299	71.8%	$26,745	80.0%	$31,243	6.6%	3.1%
Degree/Certificate	79.3%	$27,750	79.7%	$32,984	81.1%	$32,649	86.9%	$36,495	17.7%	10.6%
		10.6%	4.0%	8.9%		22.1%	6.9%	16.8%		
Econ. Disadv., Yes										
Noncompleters	60.5%	$20,470	68.7%	$25,431	63.1%	$20,421	71.8%	$25,078	-0.2%	-1.4%
Degree/Certificate	78.3%	$26,071	87.7%	$31,010	84.6%	$31,936	83.6%	$36,645	13.6%	18.2%
		37.1%	19.0%	21.9%		56.4%	11.8%	46.1%		

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English Proficiency

According to Table 12, for students with limited English proficiency (students who were enrolled in ESL classes) and under the age of 25, the data was too limited to draw any meaningful conclusion (n=7). An analysis for all age groups revealed that completers with limited English proficiency had the highest salary gain (84.6%) over a three year period. Further, completers with or without limited English proficiency had higher salary gains compared to those who did not complete their studies. However, in the category of earning over $12,875 a year, students with or without limited English proficiency did not do as well. Although the completers with limited English proficiency increased their salary earnings in comparison to noncompleters in the first year from -8.7% to 9.8%.

Table 12. Post-College Wages by English Proficiency Level upon Entering College for All Occupational Education Students (All Salary Levels).

	1st Year Emply'd	1st Year Wage	$12,875+ Emply'd	$12,875+ Group	3rd Year Emply'd	3rd Year Wage	$12,875+ Emply'd	$12,875+ Group	%change avg. wage	%change $12,875+
<25										
LEP, No										
Noncompleters	65.5%	$15,954	57.1%	$22,110	68.7%	$19,431	69.0%	$24,704	21.8%	11.7%
Degree/Certificate	78.1%	$22,993	69.5%	$29,862	76.9%	$29,743	81.3%	$34,873	29.4%	16.8%
		44.1%	12.5%	35.1%		53.1%	12.4%	41.2%		
LEP, Yes										
Noncompleters	39.6%	$15,257	66.7%	$16,227	32.5%	$15,567	75.0%	$15,567	2.0%	-4.1%
Degree/Certificate	100.0%	$ 8,187	20.0%	$15,717	80.0%	$14,470	75.0%	$23,883	76.7%	52.0%
		-46.3%	-46.7%	-3.1%		-7.1%	0.0%	53.4%		
All Ages										
LEP, No										
Noncompleters	73.2%	$27,176	78.4%	$32,302	72.4%	$28,930	82.0%	$33,429	6.5%	3.5%
Degree/Certificate	79.4%	$28,182	82.4%	$32,630	82.0%	$32,775	86.6%	$36,741	16.3%	12.6%
		3.7%	4.0%	1.0%		13.3%	4.6%	9.9%		
LEP, Yes										
Noncompleters	59.0%	$19,703	68.6%	$25,540	64.0%	$22,091	93.0%	$22,959	12.1%	-10.1%
Degree/Certificate	70.0%	$11,032	28.6%	$23,310	77.8%	$20,365	71.4%	$25,213	84.6%	8.2%
		-44.0%	-40.0%	-8.7%		-7.8%	-21.6%	9.8%		

ADVANTAGES AND LIMITATIONS OF THE POST-EDUCATION EMPLOYMENT TRACKING SYSTEM

Advantages of Employing this System

During the past ten years, California Community Colleges have gathered data on occupational education students through the use of a follow-up survey. This method of

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collecting data was found to have its share of major shortcomings. First and foremost, the response rate was extremely low, with the majority of colleges reporting approximately a 20% return rate. In addition, this method was short-term; found to be very costly; relied heavily upon self-reporting; and created a burden to colleges in time and management. The strength of the Post-Education Employment Tracking System is in its ability to overcome all of these limitations. The advantages include:

1. High Match/Response Rate: The UI wage files contain data on pproximately 95% of all employees in the state of California. Cabrillo College reported a 65 - 79% match rate over four years.

2. Accuracy of Data: The data provided are based upon actual payroll records rather than self-reports from students.

3. Ease of Collecting Data: The electronic linking of social security numbers with the UI data can be done quickly and efficiently.

4. Data for Longitudinal Studies: The data allows for longitudinal studies on student employment and earnings. This study utilized data over a four year period, but the capability to track further years is available in this system.

5. Data for Comparative Analysis: It is possible through this system to conduct analyses of students utilizing a significant number of variables. Since the student records provide both demographic and educational data, the relationship between student success and employment can be studied.

6. Cost Effectiveness: Overall, this system is extremely cost effective. As compared to the costs involved in mail-out surveys, the state will save significantly in accessing this data.

Limitations of Employing this System

There are some disadvantages of utilizing this information for studying job placement rates of California community college students. These limitations include:

1. Not All Students Are Included
   The UI files provide information on a select number of students working in California. The database does not include persons who are unemployed, living outside of the state, or persons working in the military or in other governmental positions.

2. Provides Only Industry Specific Data
   The information collected by EDD requires identification of the industry affiliation of the business (such as, services, construction, public administration) rather than occupational status (such as, nurse, construction manager, peace officer). The lack of the information makes it impossible to determine whether students are actually working in the occupation they studied while attending Cabrillo College.

3. Part-time and Full-time Employment Is Not Differentiated

As mentioned earlier in this report, employers are not required to report the number of hours an employee works. Due to this limitation, a calculation of annual wages is necessary to distinguish part-time employment from full-time employment. The figure of $12,875 was used in this study for an approximation of full-time employment wages.

4. Lacks Data on the Quality of Job Preparation

An electronic match on employment and wages lacks the ability to assess the quality of training students received. Student and employer feedback regarding the quality of job preparation is still needed and further study is necessary for a full profile of student job preparation and employment.

SUMMARY

The data provided through UI yielded critical information regarding the employment status of students attending Cabrillo College. This information reported the following: (1) approximately 77% of all students attending Cabrillo College were already working; (2) students who received a degree or certificate reported the highest salary gains over time; (3) wages of students who completed specific occupational programs can be documented; and (4) student earnings increased significantly over a three year period. This information can be used at the local level to assist in activities as:

Recruitment of Students
Career Planning
Program Review
Educational Planning and Resource Allocation
Research on the Relationship between Student Participation in Particular Programs and Employment and Earnings

In addition, this data allows the college to meet federal and state accountability requirements, such as the Student Right-to-Know Act; Vocational and Applied Technology Education Act Standards and Measures; and the Accreditation Commission Standards pertaining to student outcomes.

This study has demonstrated the positive economic impact of occupational education at Cabrillo College on former occupational majors, especially those who completed their program of study by receiving a degree or certificate. The above findings showed that for traditional students (age <25), a community college degree or certificate made a significant difference in their employment and salary gains. The study found that Latino students, the largest minority group at Cabrillo, have been able to make significant salary gains after receiving an associate degree or certificate from Cabrillo College. It is also clear that many students who were formerly economically disadvantaged improved their economic standing by attending Cabrillo College

The findings from this study may lend useful planning information to the occupational programs at Cabrillo in the areas of program planning, and performance based accountability reporting. This study is a local validation of studies carried out at the state level (Friedlander, the Chancellor's Office) and the national level (W. N. Grubb) by showing that an associate degree or certificate from Cabrillo increased the earnings of former students. The study provided answers to questions such as the employment rates of former Cabrillo students in occupational programs. It also shed light on the earning power for these students by majors and by different demographic configurations.

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